Space Weather Forecast

Issued on Tuesday 15 October 2024 at 01:15 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Chance G1 Minor Storm day 1 (15 Oct). Chance of isolated Moderate flares persists.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Moderate activity with a Moderate-class flare observed at 14/0017UTC from a large region near the northwest limb. There are eight sunspot regions on the Earth facing disc, with AR3857 and AR3858 in the far southeast recently numbered. AR3848 remains of interest, as a large spot which had been largely inactive aside from the Strong on 09 Oct, until a recent Moderate flare. This is now hard to observe, and will shortly be leaving the viable disk. AR3852 and AR3854 in the south-centre form a coupled pair of sunspots. While relatively inactive and also simplifying in visible appearance with the loss of intermediate spots, the regions continue to show some modest magnetic structure. The two new region on the east limb appear simple, but remain too close to the limb for an accurate analysis.

No Earth-directed coronal mass ejections (CMEs) have been observed.

Solar Wind / Geomagnetic Activity: Solar winds were initially slightly elevated but fell to background levels through the first half of the period. An increase in speeds back towards slightly elevated levels was recorded following a CME arrival at approximately 14/1717 UTC. The Interplanetary magnetic field, Bt, was weak to start, but increased following CME arrival to become moderate. The important north-south component, Bz, varied weakly initially, becoming generally weakly negative following CME arriva. Geomagnetic activity was Quiet to Unsettled (Kp0-3).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) were at background, with no Solar Radiation Storms occurring.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate activity is expected with a chance of isolated Moderate-class flares.

Solar Wind / Geomagnetic Activity: Ongoing slightly elevated solar winds and weak CME influence are expected to gradually ease through day 1 (15 Oct). However, there is a potential for elevated winds to return for a time on days 1-2 (15-16 Oct) due to any further transitory CME influence or a possible connection to faster winds. A more notable solar wind enhancement possible into day 4 (19 Oct).

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.

Overall geomagnetic activity is expected to be mainly Quiet to Unsettled. There is a likelihood of Active intervals both to start and end the forecast associated with CME arrival or fast wind influence, and there is a chance of isolated G1 Minor Storm intervals day 1 (15 Oct) given uncertainty with potential CME arrival.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to remain at background, with no Solar Radiation Storms occurring. However, there remains a slight chance of further enhancements given any significant flares.

Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	30	10	1	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	Yes	40	35	30	30
Very Active	R3-R5 (X Class)	No	5	5	1	1

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	**≥ S1**	No	10	10	5	5
Very Active	**≥ S3 ***	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.